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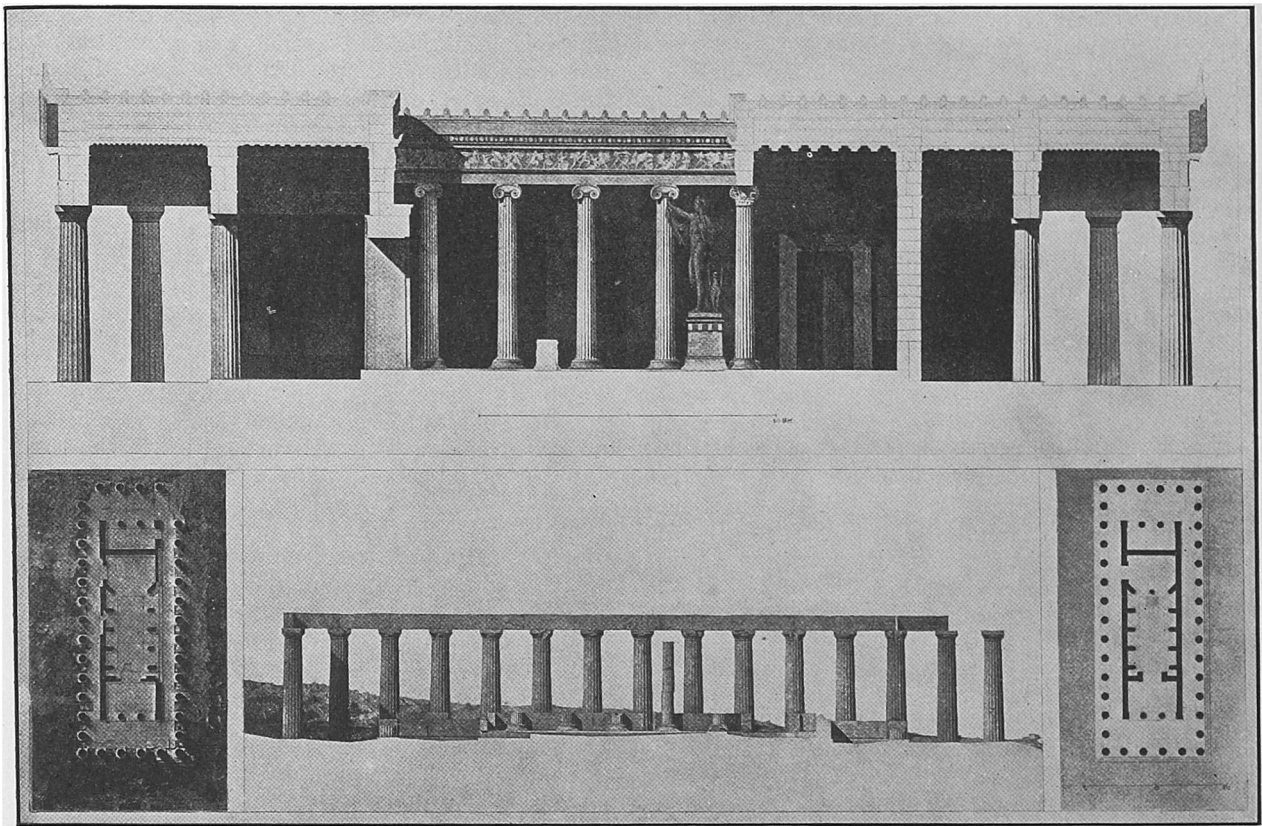
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TEMPLE OF APOLLO EPIKOURIOS AT BASSAE IN ARCADIA

THE CLASSIC ORDERS OF ARCHITECTURE

BY EGERTON SWARTWOUT, F.A.I.A.

PART II (Continued). THE DORIC ORDER

IN the preceding article an attempt has been made to show the probable derivation of the Classic temple from its wooden prototype, and the reasons which may have influenced the Greeks in its development; and now consideration may be given to the use of the Doric order in Classic times, the methods of construction employed, the refinements that were developed, and the possible adaptability of this order to the expressions of modern architecture. Any consideration of the Doric order must include a consideration of the temple of which this order is a part. In reality it is more than a part; it is the building itself. Without the inclosing range of columns in a peripteral temple, there would be, architecturally speaking, no temple at all; for the Greeks, living essentially out of doors, considered the interiors of their temples and houses as apparently of less importance than the exteriors, in direct contrast to the monumental work in Egypt and in Rome. In their temples the Greeks seemed to have been hampered to an excessive degree by their lack of constructive knowledge, the superimposed orders of the interior presenting an extreme contrast to the monumental simplicity of the exterior. It is true that, owing to the present ruinous condition of these temples it is impossible to make any restoration which could be considered authentic, and, therefore, any such criticism as mentioned above is, of necessity, based, not on what actually

existed in the Classic period, but on the restorations which have been made. It is also true that in some instances, as at Bassæ (Figure XIV), there is an indication of a more monumental effect than is elsewhere probable; in fact, this remarkable temple offers one of the most interesting, yet baffling, problems that have been presented to the architect or archeologist. No adequate explanation has ever

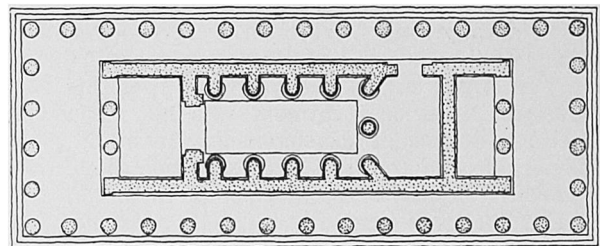


FIG. XIV—PLAN OF TEMPLE OF APOLLO EPIKOURIOS AT BASSAE

been given for the remarkable arrangement of the interior columns, although a suggestion has been made that the connection between these columns and the cella wall might have been intended as a buttress to support a vaulted stone ceiling, the objection to this hypothesis being that no remains of such a ceiling have yet been discovered. It is conceivable that some novel arrangement in wood,

the thrust of which was considerable, had been attempted in this temple, and that these buttresses were, therefore, necessary; and yet any such hypothesis does not give any reason for the splaying of these connecting walls in the case of the two end columns. There is evidence to show that this temple, which alone of all the temples of the Greeks was not oriented, was built on the site, and included a portion of the cella of a smaller temple of great antiquity, and that the explanation for the curiously placed door in the naos is that it coincided with the door of the original temple, which faced east. This however, does not explain the slanting buttresses or walls of the end columns, nor does the statement of Mr. Ferguson in his monograph on the lighting of temples, in which he refers to the obvious efforts made by the architect to bring the interior columns exactly on the axis of the exterior bays, so that the hypaethral openings suggested in the roof might be symmetrically placed with reference to the exterior. Granting that these columns were so placed, there is no need whatever for the slanting walls, nor for the extreme narrowness of the first bay of the naos.

In default of a better explanation, it has occurred to me that, as Bassæ was evidently a shrine of special sanctity, as was instanced by the preservation of the naos of the older temple and the probably archaic statue which it contained, there may have been some religious significance attached to the arrangement of the naos. The alcoves between the engaged columns may possibly have been altars to various gods, similar to the side altars and chapels in a great cathedral—and indeed such alcoves are indicated in the restoration of the Heraion at Olympia—and these shrines may have been covered with grille work or with curtains, so that to a person standing in the naos, the connecting walls would be unseen, and the columns would appear free standing. It may be that the smaller recesses at the entrance were for other more utilitarian purposes, a possible wooden staircase perhaps, and also that it was for some ritualistic reason desirable to leave open the two end alcoves nearest the statue, and that, therefore, the connecting walls were made to radiate so that to a person standing in that part of the naos to which the public were admitted, these end columns would also appear free standing. The above explanation is not offered as anything more than a mere suggestion, which possibly is not worthy of serious consideration. In any event, it is regrettable that this very interesting interior treatment was not carried to a greater degree of development. It would seem that perhaps the architect, Ictinos, either on account of certain ritualistic requirements, or because of the fact that this temple was in the provinces, had felt at liberty to abandon the hitherto rigidly adopted arrangement of the Doric temple, and introduced certain innovations which were capable of a much more monumental treatment than had ever before been seen in Greece. Unfortunately, this temple came at the very close of the golden period of architecture. Even in its own case there is not the indication of the same degree of care in construction or refinement of detail that is shown in the Parthenon, which shortly preceded it. From then on the decline was rapid, and we have only this incomplete fragment to show what might have been

the ultimate development of the Greek temple. The plan, then, of the temple and its interior arrangements are so simple and so typically a part of the peculiar requirements of the period, and, therefore, their critical consideration has so little to do with the purpose for which these articles are written, that there are only a few points which need be referred to. The question of the lighting of these temples has been, and still is, a mooted point, a point that probably will never be definitely settled, unless there can be discovered some contemporaneous writings or inscriptions which treat the matter more in detail than those of Vitruvius. Personally, I have always been extremely attracted by the theory advanced by Ferguson. It does not seem conceivable that the Greeks, after having devoted so much care and shown so much skill in the treatment of their temples, would either allow the major portion of the cella to be open to the elements from choice, or would confess themselves unequal to the simple task of providing an adequate roof or the requisite openings to admit light; for it is evident that there must have been some openings other than the doors. The theory has been advanced that a sufficient amount of light filtered in through the thin and semi-translucent marble tiles of the roof. This appears but a poor explanation at the best. The effect could not help but be extremely unpleasant, and if there was enough light transmitted through the tiles to be distinguishable, it would of necessity be cut up into unsightly forms by the shadows of the supporting beams and by the irregularities in the roof, and would bring the roof beams into a most startling and unpleasant contrast; nor is it conceivable that artificial light was used exclusively, nor that the interior was left in the semi-obscurity of a cave.

The generally accepted hypothesis of a large hypaethral opening in the roof (Figure XV), by which not only light but rain would be admitted directly into the cella, seems absolutely impossible of belief; that the chryselephantine statues of the divinities and the wonderful veils and votive offer-

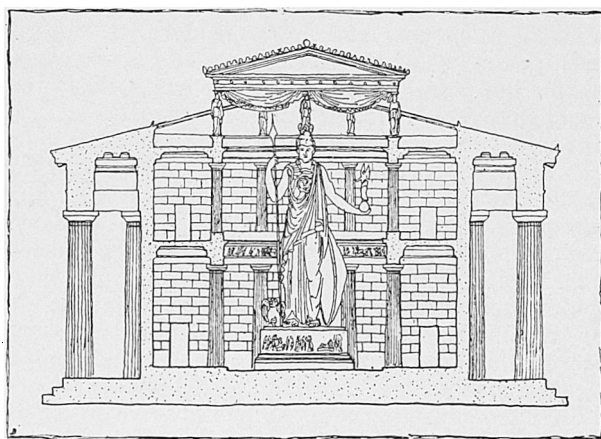


FIG. XV—SECTION OF PARTHENON SHOWING CONJECTURAL HYPAETHRAL OPENING. AFTER CASINA

ings would all be left exposed to the elements after having been carefully enclosed in a stone temple, is an insult to the architectural ability and common sense of the Greeks. Then, too, the interruption of the ridge and the large hole in the roof would have been most unsightly, as the roofs of the low Greek temples are generally visible; so that if open-

ings were introduced in the roofs they must have been so small as to be imperceptible, the idea of dormers or an attic being architecturally impossible; and as there have been found a few curiously shaped tile which seem to have formed the edge of a small opening in the roof it is probable that the hypaethral openings suggested by Ferguson did exist. This system is certainly suggestive of the highest form of monumental lighting. An effect could be obtained which would tend to increase the apparent size of the naos, and would bring into prominence in a most striking manner the enormous chryselephantine statues with which these temples were adorned. Similarly, Mr. Ferguson's idea of the lighting of the temple of Jupiter Olympius (Figure XVI), which is the temple referred to by Vitruvius as having an opening to the sky, is one of the most magnificent schemes for lighting such an interior that can well be imagined. The admis-

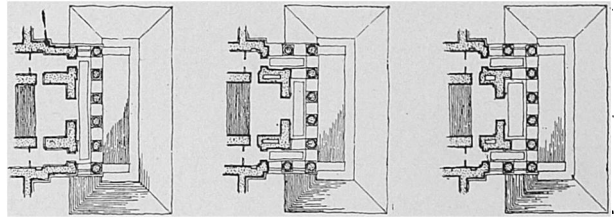


FIG. XVIII—DEVELOPMENT OF PORTICO, MISSOURI STATE CAPITOL

of the primitive form of the temple in antis. The real reason for this projection was called to my notice in a rather interesting manner. In the development of the plan of a large monumental building, it was found necessary to project the hexastyle portico considerably further from the building than had been originally intended, in order to accommodate a monumental flight of steps which led to the main story above the portico level. (Figure XVIIIa.) In studying this effect from a small scale model in plastaline, it was found that this projection was rather unpleasant and clumsy, and as the staircase was only in width equal to the three central bays, it was found possible by the addition of two more columns on the wings to continue this portico back to the face of the building, leaving the vestibule for the stairs projecting under the portico in a manner similar to the cella of a Greek or Roman temple. (Figure XVIIIb.) The solution seemed on paper a happy one, but when tried on the model the effect was found to be not entirely satisfactory. The vestibule or cella wall ending in a square pilaster at each corner had a most unpleasant and box-like appearance, which was extremely noticeable. This effect was puzzling to me, because I felt the form itself was, by precedent, correct, and this led to a critical examination of the plans of various temples. I then noticed that in all cases where the pronaos was not treated with columns in antis the flank wall of the pronaos projected a considerable distance beyond the wall of the naos itself, and it occurred to me that this might have been done to get rid of the box-like feeling which was so objectionable in the little model. This idea was immediately applied to the model, the wall of the vestibule pushed back so as to leave a projection of between four and five feet, and it was found to answer the purpose exactly. (Figure XVIIIc.) The box-like appearance immediately disappeared, and the large door fell into its proper relations with the portico in front. I also found that the effect of shadows was greatly enhanced by this unusual arrangement, and that the pilaster which formed the original corner could be considerably reduced in width on the flank side of the vestibule wall; in other words, instead of a pilaster, it became an anta. This simple and practical experiment convinced me more than ever that in the development of their temples the Greeks must have made extensive use of models both at a small scale and doubtless at the size of execution. We know that they were familiar with the use of stucco, and undoubtedly the models were made in that material.

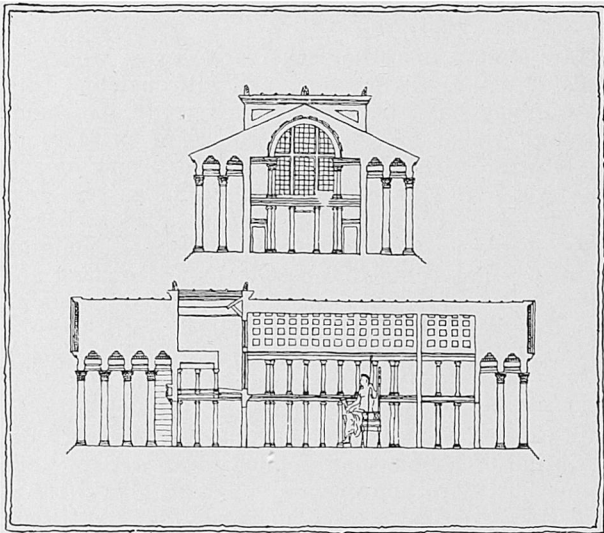


FIG XVI—SECTION THROUGH TEMPLE OF JUPITER AT OLYMPIA SHOWING METHOD OF LIGHTING. AFTER FERGUSON

sion of light into the naos from a great window over the entrance, so that the light falls from an unseen source directly upon the statue or shrine, would unquestionably produce an effect equaled only by that in the hypostyle hall at Karnak.

One other point that is extremely interesting, and as far as I know, has not been before noticed, is the curious projection of the walls of the pronaos in the Parthenon and elsewhere. The effect, when viewed on plan (Figure XVII), is extremely peculiar, but has been generally accepted as a survival

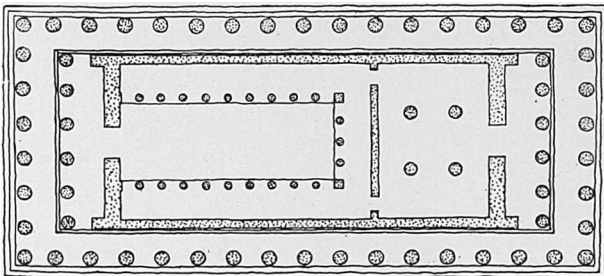


FIG. XVII—PLAN OF PARTHENON

Egerton Swartwout